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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/550,520	07/24/2006	Yasuki Tamura	1131-0543PUS1	4483

2292 7590 12/13/2006

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EXAMINER

TRAN, BINH Q

ART UNIT	PAPER NUMBER
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3748

DATE MAILED: 12/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/550,520	TAMURA ET AL.	
	Examiner	Art Unit	
	BINH Q. TRAN	3748	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-7, 13 and 14 is/are rejected.
- 7) ☒ Claim(s) 8-12, 15-16 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>09/05; 06/06</u> | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. More specifically,

- In claim 1, lines 20, 23, and 26, the use of alternative expression “*or*” renders the claims indefinite because the expressions on either side of the “*or*” are not considered equivalent and cause uncertainty with respect to the scope of the claims.

The claims not specifically mentioned are indefinite since they depended from one of the above claims.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-7, and 13-14 are rejected as far as they are definite, under 35 U.S.C. 102(b) as being anticipated by Namiki et al. (Namiki) (Patent Number 5,423,203).

Regarding claim 1, Namiki discloses an exhaust purification device for internal combustion engine (1), comprising: a catalytic converter (4) provided in an exhaust passage of an internal combustion engine, an air/fuel ratio forcibly modulating element (7) for forcibly modulating the air/fuel ratio of exhaust flowing into the catalytic converter, between a lean air/fuel ratio leaner than a target average air/fuel ratio and a rich air/fuel ratio richer than the target average air/fuel ratio, with a specific period, a specific amplitude, a specific modulation ratio and a specific waveform, an oxygen sensor (5) provided in the exhaust passage for detecting the oxygen concentration of the exhaust and supplying an output corresponding to the detected oxygen concentration (See Figs. 1-5; col. 4, lines 27-67; col. 5, lines 1-64), a time ratio calculating element for obtaining the ratio of a time for which the output of the oxygen sensor is greater than a standard value for the output set between the maximum and minimum values of the output, or of a time for which the output of the oxygen sensor is smaller than the standard value for the output, in a predetermined period of time, or a value correlating with the ratio, and an air/fuel ratio adjusting element for adjusting the air/fuel ratio of the exhaust during the forcible modulation, on the basis of the ratio or the value correlating with the ratio obtained by the time ratio calculating element (See Figs. 1-5; col. 8, lines 12-67; col. 9-10, lines 1-67).

Regarding claim 2, Namiki further discloses wherein the predetermined period of time is an integer times the period of the modulation (See Figs. 1-5; col. 8, lines 12-67; col. 9-10, lines 1-67).

Regarding claim 3, Namiki further discloses wherein the period of the modulation is set to be equal to or shorter than a maximum period which ensures the air/fuel ratio to be detected on the basis of the output of the oxygen sensor does not reach the upper or lower limit of a range of air/fuel ratios detectable by the oxygen sensor (See Figs. 1-5; col. 8, lines 12-67; col. 9-10, lines 1-67).

Regarding claim 4, Namiki further discloses wherein the air/fuel ratio forcibly modulating element performs the forcible modulation so that the output of the oxygen sensor varies passing through a switch point of an output characteristic curve of the oxygen sensor (See Figs. 1-5; col. 8, lines 12-67; col. 9-10, lines 1-67).

Regarding claim 5, Namiki further discloses wherein the standard value for the output is set to an output value at the switch point or in the vicinity of the switch point (See Figs. 1-5; col. 8, lines 12-67; col. 9-10, lines 1-67).

Regarding claim 6, Namiki further discloses wherein the oxygen sensor has a catalytic function (See Figs. 1-5; col. 8, lines 12-67; col. 9-10, lines 1-67).

Regarding claim 7, Namiki further discloses wherein the air/fuel ratio adjusting element adjusts the air/fuel ratio of the exhaust during the forcible modulation, on the basis of a difference between the ratio or the value correlating with the ratio obtained by the time ratio calculating element and a standard value for the ratio (See Figs. 1-5; col. 8, lines 12-67; col. 9-10, lines 1-67).

Regarding claim 13, Namiki further discloses wherein the standard value for the ratio of the time for which the output of the oxygen sensor is greater than the standard value for the

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output, or for the value correlating with the ratio is in the range of 0.5 to 0.75 (See Figs. 1-5; col. 8, lines 12-67; col. 9-10, lines 1-67).

Regarding claim 14, Namiki further discloses the standard value for the ratio of the time for which the output of the oxygen sensor is smaller than the standard value for the output, or for the value correlating with the ratio is in the range of 0.25 to 0.5 (See Figs. 1-5; col. 8, lines 12-67; col. 9-10, lines 1-67).

Allowable Subject Matter

Claim 8-12, 15-16 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Since allowable subject matter has been indicated, applicant is encouraged to submit ***Final Formal Drawings (If Needed)*** in response to this Office action. The early submission of formal drawings will permit the Office to review the drawings for acceptability and to resolve any informalities remaining therein before the application is passed to issue. This will avoid possible delays in the issue process.

Prior Art

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure and consists of five patents:

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Surnilla et al. (Pat. No. 6543219), Tamura (Pat. No. 4854124), Nakagawa et al. (Pat. No. 7059120), Ohsaki et al. (Pat. No. 6371096), and Hamburg et al. (Pat. No. 5325711) all disclose an exhaust gas purification for use with an internal combustion engine.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Binh Tran whose telephone number is (571) 272-4865. The examiner can normally be reached on Monday-Friday from 8:00 a.m. to 4:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas E. Denion, can be reached on (571) 272-4859. The fax phone numbers for the organization where this application or proceeding is assigned are (571) 273-8300 for regular communications and for After Final communications.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

BT
December 08, 2006



Binh Q. Tran
Patent Examiner
Art Unit 3748